

sales or exchanges amongst the members. Some of these old societies still flourish in undiminished vigour, unaffected by the changes which have passed over the country and altered all around them. Amongst these are the *Kô-butsu-sha*, or Antiquarian Society, the Numismatic Society, the Association of *Go*-players, and many of the old assemblies for literary and poetical contests. But the new era has been productive of societies of a more scientific kind, based on the models of learned associations in Europe and America. Founded by students fresh from abroad, they have received the support of men of wealth and eminence, and, judging from the experience of the past few years, they seem in a fair way to attain permanent success.

The most important of these associations is the Geographical Society of Tokio, which now numbers about 200 members. The subscriptions, which are very small, are largely increased by donations from the wealthy members. It is under the patronage of several of the imperial princes, and among its members are the chief personages of the Empire. The *Transactions* are neatly printed in small pamphlets of about 100 pages each, and contain much matter which would be valuable even to European geographers. With the exception of China, Japan is the only foreign country having intercourse with Corea. Our information respecting this peninsular kingdom is limited to the imperfect accounts of the Jesuit priests; but the Japanese Geographical Society has already had several interesting and important papers on the subject from its members. The difficulties of the language seriously restrict the circulation of these and other papers, but we believe the Committee are contemplating the publication of translations of their *Transactions*.

During his too brief stay in Japan as occupant of the Chair of Zoology in the University of Tokio, Prof. Morse of Salem, Massachusetts, was instrumental in establishing a Biological Society which attracted much attention. It is now being conducted successfully by Prof. Yatabe, a Japanese gentleman educated in the United States.

Another association, which is, we believe, unique among the societies of the world, is the *Kojunsha*, or Society for the Circulation of Knowledge. Its head-quarters are at Tokio, but there are branches in every town of importance in the Empire. It possesses a secretary and staff of clerks, and a member desiring to obtain information on any subject applies to the secretary. The latter has on his books the names of all the members likely to be able to satisfy the applicant, and immediately transmits the question to them. The answers are forwarded in due course to the inquirer, and should the subject be deemed by the Committee of sufficient general importance, the whole is printed in the weekly *Journal* of the Society. The pains which are taken to obtain satisfactory replies to queries are, we can vouch from personal experience, almost incredible. It is not surprising to learn that this Society has nearly 3000 members scattered throughout the Empire, and even in Europe and America. As a device for bringing together the active and inquiring minds of the country, it is almost unequalled. The subscription, which includes the use of reading-rooms and the numbers of the *Journal*, is about half-a-crown per month.

The Numismatic Society, to which we have already referred, is also very active. It publishes a periodical describing new and strange coins that have been exhibited at its meetings, and supplies other information interesting to collectors.

We need not refer here to the English and German Asiatic Societies founded in Yokohama and Tokio. They are under the control of foreign residents, their papers are in a foreign tongue, and, although their work has been most valuable, they are outside the scope of the present article. Nor need we give more than a passing reference to the innumerable political societies which have

sprung up like mushrooms in all parts of the country during the past few years. If the objects of the promoters of these organisations were less palpably selfish, and more in accordance with their high-sounding titles, they would be very important instruments in the education of the people.

But we cannot pass over the latest scientific association of Japan. The Seismological Society, as its name indicates, is founded for the purpose of investigating volcanic and earthquake phenomena of all kinds. Japan is particularly well situated for this object. There are numerous active and extinct volcanoes throughout the island. Mild earthquakes are of very frequent occurrence, so that the student has not, on the one hand, to wait months for his subject, as in most parts of Europe, or, on the other, to run for his life when it does come, as in South America. This society was founded chiefly through the energy of its vice-president, Mr. Milne, professor of geology in the Engineering College at Tokio, who has long made seismic phenomena a special study. A Japanese, Mr. Hattori, himself a student of the subject, is President of the Association, which numbers many foreigners amongst its members. The Central Government have throughout taken a warm interest in the success of the Society, and have, we believe, placed the telegraph lines at its disposal, and ordered the local officials all over the country to report all occurrences connected with earthquakes and volcanic eruptions in their districts. A few months since, under the auspices of the Society, an exhibition of seismological instruments of various kinds—one of them as ancient as A.D. 126—took place in Tokio. The number of visitors in one day to the rooms was over 2000, a fact which attests the interest taken in this study by the Japanese. The *Transactions* of the Society are published in English in the *Japan Gazette* newspaper of Yokohama.

The army, navy, and other professions have their own societies and newspapers, very much as in England. One of the most curious of these class or trade journals is the dancing-girls' paper, containing portraits and biographies of the chief *danseuses*. We have not advanced so far yet in England as to have an organ-grinders' gazette!

On the whole it must be pronounced that the outlook for the propagation of scientific knowledge in Japan is hopeful; and there seems no reason to fear that science will suffer greatly after the approaching and inevitable departure of all foreign instructors in the country. They will leave behind men who, although possibly not such efficient teachers, are animated by all the thirst for knowledge that animates the bulk of scientific men in western lands.

## NOTES

DR. C. W. SIEMENS has received from the French Government a formal document nominating him "Officier de l'Instruction Publique," the nomination being accompanied by the insignia of the order, which corresponds, we believe, to the Prussian order "Pour le Mérite."

It is proposed to open an International Electrical Exhibition at the Crystal Palace in December.

THE anatomical department of Edinburgh University has lost a valuable servant in the death, at the age of seventy, of Mr. A. B. Stirling, the assistant conservator of the Anatomical Museum. He was born in 1811 at Milngavie, Stirlingshire, where his father was a shoemaker. Stirling early evinced a decided liking for natural history studies; he was a born naturalist. His love of natural history brought him into contact with the late Prof. John Reid and Dr. Adamson of St. Andrews, who employed him to

arrange the University Museum there. In 1856 he was introduced to the late Prof. Goodsir, who recognised his aptitude for anatomical work, and saw in him one who would be a congenial helper in the work which he had in view; and Mr. Goodsir appointed him assistant conservator of the Edinburgh Anatomical Museum—a museum which he has enriched with hundreds of anatomical preparations (normal and morbid), and also many comparative anatomy specimens, which are all characterised by great taste in the way in which they are mounted. He soon acquired an extensive knowledge of anatomy, human and comparative; he had so remarkable a mechanical turn, and so inventive a mind, that he devised many new methods for preserving the human body for dissection, for mounting anatomical preparations, for cutting microscopic sections, and for mounting the same. He was an accomplished microscopist and a keen fisher, and this led him to take a great interest in fish, especially the Salmonidæ; and, when the “fungous disease” broke out amongst the salmon in the Tweed and other rivers, he investigated this matter, and communicated his results to the Royal Society of Edinburgh—results which are said to contain by far the best description yet given of the pathological conditions of this remarkable disease. Not only did Mr. Stirling encourage and aid others, but, in turn, he was the esteemed and highly valued friend of the late Prof. Goodsir and of Prof. Turner, both of whom gave him every facility for carrying on his investigations.

THE Royal Commission on Technical Instruction visited Saltire and Keighley on Tuesday, and were present at the annual meeting of the School of Science and Art in the Keighley Mechanics' Institute. Mr. Slagg, M.P., speaking of the objects of the Commission, said that their great aim would be to develop a plan by which their system of primary education should be linked to a higher system, comprising a higher training and leading up to the highest scholastic education the country could afford. For his own part he did not see anything at the present moment in foreign competition to appal them in the slightest degree, and substantially he believed that they held their ground very well indeed. Mr. Samuelson, M.P., said that it was impossible that they as a nation could continue to hold the superior rank which they had taken among manufacturing countries if they did not cultivate the industrial intelligence of their population, and it was on that account that he thought the Commission would result in great good.

A REMARKABLE phenomenon occurred in New England on September 6, almost exactly similar to one that occurred in the same region on May 19, 1780. The *Springfield Daily Republican* describes it as follows:—In this city the day began with a slow gathering of fog from all the watercourses in the early hours, the thin clouds that covered the sky at midnight seemed to crowd together and descend upon the earth, and by sunrise the atmosphere was dense with vapour, which limited vision to very short distances, and made those distances illusory; and as the sun rose invisibly behind, the vapours became a thick, brassy canopy, through which a strange yellow light pervaded the air and produced the most peculiar effects on the surface of the earth. This colour and darkness lasted until about three o'clock in the afternoon, once in a while lightening, and then again deepening, so that during a large part of the time nothing could be done conveniently indoors without artificial light. The unusual complexion of the air wearied and pained the eyes. The grass assumed a singular bluish brightness, as if every blade were tipped with light. Yellow blossoms turned pale and gray; a row of sunflowers looked ghastly; orange nasturtiums lightened; pink roses flamed; lilac-hued phlox grew pink; and blue flowers were transformed into red. Luxuriant morning-glories that have been blossoming in deep blue during the season now were dressed in splendid magenta; rich blue clematis donned an

equally rich maroon; fringed gentians were crimson in the fields. There was a singular luminousness on every fence and roof-ridge, and the trees seemed to be ready to fly into fire. The light was mysteriously devoid of refraction. One sitting with his back to a window could not read the newspaper if his shadow fell upon it—he was obliged to turn the paper aside to the light. Gas was lighted all over the city, and it burned with a sparkling pallor, like the electric light. The electric lights themselves burned blue, and were perfectly useless, giving a more unearthly look to everything around. The darkness was not at all like that of night, nor were animals affected by it to any remarkable extent. The birds kept still, it is true, the pigeons roosting on ridge-poles instead of flying about, but generally the chickens were abroad. A singular uncertainty of distance prevailed, and commonly the distances seemed shorter than in reality. When in the afternoon the sun began to be visible through the strange mists, it was like a pink ball amidst yellow cushions—just the colour of one of those mysterious balls of rouge which we see at the drug-stores, and which no woman ever buys. It was not till between five and six o'clock that the sun had sufficiently dissipated the mists to resume its usual clear gold, and the earth returned to its everyday aspect; the grass resigning its unnatural brilliancy and the purple daisies no longer fainting into pink. The temperature throughout the day was very close and oppressive, and the physical effect was one of heaviness and depression. What was observed here was the experience of all New England, so far as heard from, of Albany and New York city, and also in Central and Northern New York. In reference to this phenomenon the *New York Nation* suggests that it may be worth the while of weather-observers to note the approximate coincidence between the interval separating the two dark days in New England (May 19, 1780, and September 6, 1881) and nine times the sun-spot cycle of eleven years.

THE ceremony of cutting the first sod of the Giant's Causeway and Portrush Tramway was performed the other day at Portrush, in presence of the directors and a large company of the local gentry and visitors at Portrush. Interest was attached to the ceremonial owing to the fact that it is intended to work the tramway by electricity, the company thus being the first to introduce into the United Kingdom electricity as a motive power for tramway and railway propulsion. The chairman of the company, Dr. Traill, said that not many years would elapse before this dynamo-electric power would be supplied, not alone to tramways suitably situated for it, as this one undoubtedly was, but also to railways. To shareholders in a company such as this they could easily see what an important thing such a revolution in locomotive power would represent. The working expenses for haulage on a tramway such as theirs with horses would be about 11*d.* per mile, and by steam power about 7*d.* per mile, but there was every reason to suppose that the working expenses of their motive power need not reach 1*d.* a mile.

SOME time ago we gave an account of the nature and uses of celluloid. Among other things it may be used for preserving typographical *clichés* and stereotypes. The process employed for this purpose, we learn from *La Nature*, consists in taking an impression of the engraved block by means of a special cement, which receives the impression and rapidly hardens. After about twenty minutes the cement can support a pressure of 250 kilograms. The presses used to take the first impression ought to be heated; and the celluloid in sheet is then used to take the counter-impression from which to print. Celluloid shows the typographical reproduction of specimens of lace in a marvellous fashion, by the actual impression of the lace itself. *La Nature* gives an illustration of a piece of lace engraved in this manner, and the reproduction of the pattern is perfect.

A TELEGRAM from Constantinople of September 30 states that an earthquake had occurred at Changeri, in Anatolia, which



caused the death of eleven persons and great injury to the Grand Mosque and numerous dwelling-houses. The amount of damage done in the neighbouring villages is not known.

A GEOGRAPHY of the almost unknown kingdom of Corea has been compiled by a member of the suite of the Japanese envoy to that country. Several valuable papers containing accounts of travels in Corea have been read before the Geographical Society of Tokio, and have appeared in its *Transactions*. As they are written in Japanese they are unfortunately all but inaccessible to European geographers.

THE Prefect of the Seine has established a course of six lectures for the teaching of micrography. An examination has been instituted for inspectors intrusted with the care of detecting trichinæ in the substance of pork and ham of American or German origin.

A CURIOUS experiment will be tried this week at La Villette gasworks, Paris. Two balloons of equal size will be sent up at the same time; one of them will carry an experienced sculler, who is confident that he will produce some effect with a long oar of his invention.

UNDER the title of "School Physical and Descriptive Geography" Mr. Stanford has issued a smaller and cheaper edition of the late Keith Johnston's "Physical, Historical, Political, and Descriptive Geography," reviewed in these pages at the time of its appearance. In the school edition the historical sketch and the elaborately-printed maps have been omitted, while all the strictly geographical information has been retained. In this form it ought to find wide acceptance among all teachers who aim at making geography both interesting and thorough. No better text-book could be recommended.

THE subject of the address by Shadworth H. Hodgson, LL.D., before the Aristotelian Society on Monday evening will be "The Practical Bearing of Speculative Philosophy."

WE have received from Rothschild of Paris an interesting little volume on Pisciculture in France. It consists of two parts—Pisciculture, Fluvial and Maritime, by Jules Pizzetta; and Oyster-Culture, by M. De Bon.

IN its summary of colonial intelligence the *Colonies and India* mentions the discovery of a valuable coal-seam near Victoria, Huon, Tasmania, which has been traced on the surface for about twenty yards, and increased in width from three to four feet, when it was lost in a hill. The coal has been tried and found to be of good quality.

A VALUABLE archaeological discovery, which may be said to equal that of the celebrated Kertch antiquities at the Hermitage of St. Petersburg, has recently been made near the Cossack village of Sewersk in the Sakuban district, in one of the *kurdans*, i.e. the old tombs, in the steppes of Southern Russia. A number of objects were found, but special attention was drawn to two glass vessels, unfortunately broken, but the pieces of which still give evidence of their remarkable ornamentation. They are profusely covered with gold, the hoops containing large rubies and bearing golden chains, by which heart-shaped pearls are suspended. Another object of cylindrical shape, evidently a cup-holder, consists of pure gold, and shows two griffins in bas-relief. Another important object is a gold plate six inches in diameter, with a fine bas-relief representing a whole episode. M. Felizin, an eminent Russian archaeologist, is of opinion that the tomb in question must have been that of an important personage of the Bosphorean kingdom, and that its origin dates back as far as the period of King Perisad II., who began to reign in the year 284 B.C. A gold coin which was found confirms this view.

AN important discovery of very good rock-salt, affording a sheet seventy-five feet thick, was made some days ago in the district of Bakmut, in the Russian government of Ekaterinoslav, at a depth of 430 feet. The discovery was made according to the indications of the geologist, Prof. Erofeeff.

THE anniversary address of the Hon. Prof. Smith, president of the Royal Society of New South Wales, contains an interesting sketch of the history of the Society, both under its old name of Philosophical Society as well as under its present designation.

MESSRS. BLACKWOOD AND SONS have issued a twelfth edition of the "Elements of Agricultural Chemistry and Geology," by the late Prof. J. F. W. Johnston and Dr. C. A. Cameron.

IN the report sent us of the meeting of the Natural History Society of the Friends' School at York, and printed among our Notes a fortnight ago, the Rev. T. A. Preston is referred to as science master at Marlborough College. Of course this is a mistake; Mr. G. F. Rodwell has long held and still holds the post referred to.

THE additions to the Zoological Society's Gardens during the past week include a Tennant's Squirrel (*Sciurus tennanti*) from Ceylon, presented by Mrs. S. A. Cottrell; a Common Marmoset (*Hapale jacchus*) from South-East Brazil, presented by Mr. J. N. Palmer; a Chacma Baboon (*Cynocephalus porcaricus*) from South Africa, presented by Mr. W. H. L. Long; a Leucoryx Antelope (*Oryx leucoryx*) from North Africa, presented by Mr. John M. Cook; two Leopards (*Felis pardus*) from Ceylon, presented by Mr. Eustace L. Burnside; a Green Lizard (*Lacerta viridis*) from Jersey, presented by Mr. James Thorn; a Tarantula Spider (*Mygale*, sp. inc.) from California, presented by Mrs. John Leechman; five Robben Island Snakes (*Coronella phocorum*) from South Africa, presented by Rev. G. H. R. Fisk, C.M.Z.S.; two Greater White-crested Cockatoos (*Cacatua cristata*) from Moluccas; two Common Cormorants (*Phalacrocorax carbo*), British, deposited; two Blossom-headed Parrakeets (*Palaornis cyanocephalus*) from India, a Nose-horned Viper (*Vipera nasicornis*), a Crocodile (*Crocodylus*, sp. inc.) from West Africa, purchased.

#### OUR ASTRONOMICAL COLUMN

COMET V., 1863.—With reference to a remark in this column at p. 111 of the present volume of NATURE, suggesting that a further and more minute discussion of the elements of this comet might be desirable, Prof. Valentiner, director of the Observatory at Carlsruhe, has been good enough to draw our attention to a memoir by himself upon the subject which we had overlooked; it is entitled "Determinatio orbitæ Cometæ V. anni 1863," and was published at Berlin in 1869. The observations, about 130 in number, extend from 1863, December 28, to 1864, March 1, and Prof. Valentiner forms nine normal positions upon them. The perturbations of the earth and Jupiter are taken into account (the comet having approached the former at the end of January within about 0.18) and the following parabolic elements result:—

Perihelion Passage, 1863, Dec. 27.79992 M. T. at Berlin.

Longitude of perihelion	...	...	60° 24' 26.4"	} M. Eq.
" ascending node	...	...	304° 43' 23.2"	
Inclination	...	...	64° 28' 44.2"	
Log. perihelion distance	...	...	9.8873326	
Motion—direct.				

The agreement with the observations is so close as to prove that the orbit did not sensibly differ from a parabola; the conjectured identity with the comet of 1810 is therefore shown to be inadmissible, notwithstanding the striking similarity of the elements, as will appear from the comparison at p. 111.

THE NEW COMET.—Mr. S. C. Chandler, jun., has telegraphed to Lord Crawford's Observatory approximate elements of the comet discovered by Mr. Barnard last month, from which it appears that the orbit does not resemble that of any which has